



Review

Fallout radionuclide-based techniques for assessing the impact of soil conservation measures on erosion control and soil quality: an overview of the main lessons learnt under an FAO/IAEA Coordinated Research Project

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ABSTRACT

This paper summarizes key findings and identifies the main lessons learnt from a 5-year (2002–2008) coordinated research project (CRP) on “Assessing the effectiveness of soil conservation measures for sustainable watershed management and crop production using fallout radionuclides” (D1.50.08), organized and funded by the International Atomic Energy Agency through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. The project brought together nineteen participants, from Australia, Austria, Brazil, Canada, Chile, China, Japan, Morocco, Pakistan, Poland, Romania, Russian Federation, Turkey, United Kingdom, United States of America and Vietnam, involved in the use of nuclear techniques and, more particularly, fallout radionuclides (FRN) to assess the relative impacts of different soil conservation measures on soil erosion and land productivity. The overall objective of the CRP was to develop improved land use and management strategies for sustainable watershed management through effective soil erosion control practices, by the use of ¹³⁷Cs (half-life of 30.2 years), ²¹⁰Pb_{ex} (half-life of 22.3 years) and ⁷Be (half-life of 53.4 days) for measuring soil erosion over several spatial and temporal scales.

The environmental conditions under which the different research teams applied the tools based on the use of fallout radionuclides varied considerably – a variety of climates, soils, topographies and land uses. Nevertheless, the achievements of the CRP, as reflected in this overview paper, demonstrate that fallout

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